North Dakota

Wayne Duckwitz

USDA-NRCS
Bismarck Plant Materials Center
Bismarck, ND 58504

INTRODUCTION

This report summarizes 2005 project activities at the USDA Natural Resources Conservation Service, Plant Materials Center located at Bismarck, North Dakota. Current projects are focused on native prairie and riparian restoration and development of native forbs, legumes and wetland species for conservation use. Work continues on woody species and foundation seed production.

COMPLETED PROJECTS

Survivor Germplasm False Indigo and Silver Sands Germplasm Sandbar Willow were officially released for conservation use in 2005. Commercial stock is available from conservation nurseries.

ONGOING PROJECTS

4-Wing Saltbush *Atriplex canescens* (USDA Natural Resources Conservation Service, Plant Materials Center (PMC), Bismarck, North Dakota).

A South Dakota origin collection of 4-Wing Saltbush has been planted to an evaluation/seed production block. This collection is being compared to Wytana and to a Wyoming source. If data collection shows it to be superior or have improved conservation attributes, additional field plantings will be implemented to gather additional plant performance data. This collection appears to have release potential for conservation use.

Perennial Food Plot Study (USDA Natural Resources Conservation Service, Plant Materials Center (PMC), Bismarck, North Dakota, and the North Dakota State Game and Fish Department).

The goal of this project is to determine plant species and related plant technology for establishing and maintaining perennial food plots. Two perennial mixes, including a native mix and an introduced mix were seeded in the fall of 2004 and being evaluated. Plant performance and general wildlife use are being evaluated and documented.

Prairie Sandreed Evaluation Study (USDA Natural Resources Conservation Service, Plant Materials Center (PMC), Bismarck, North Dakota).

Seed collections of prairie sandreed *Calamovilfa longifolia* from 34 different locations throughout North Dakota, South Dakota and Minnesota were collected in the fall of 2003. Greenhouse propagation and the planting of a field evaluation block were completed in 2004. Initial plant performance screening in 2005 included disease resistance to leaf and stem rust, leafiness, vigor, seed production, and winter hardiness. Plants expressing the desired traits will be vegetatively transplanted to a seed increase block to move the study into advanced evaluation. The final objective will be to release plant material of prairie sandreed for conservation use in the higher rainfall areas in the eastern Dakotas and Minnesota.

Sand Bluestem Evaluation Study (USDA Natural Resources Conservation Service, Plant Materials Center (PMC), Bismarck, North Dakota).

Seed collections of sand bluestem *Andropogon hallii* were initiated in 2003. Seed was collected from 20 different locations throughout North Dakota, South Dakota and Minnesota. Collections were propagated in the greenhouse and planted to an evaluation nursery in the spring of 2005. The planting is being evaluated for forage production, seed production, and disease. This release would provide a northern seed origin of this warm-season grass species that is not currently available.

Direct Seeding Woody Species into Riparian Zones (USDA Natural Resources Conservation Service, Plant Materials Center (PMC), Bismarck, North Dakota).

Eight native trees and shrub species were directly seeded into soybean stubble. Basswood *Tilia americana*, bur oak *Quercus macrocarpa*, green ash *Fraxinus pennsylvanica*, hackberry *Celtis occidentalis*, birch *Betula papyrifera*, chokecherry *Prunus virginiana*, false indigo *Amorpha fruticosa*, and ironwood *Ostrya virginiana* were planted from seed. Weed control methods, using both clipping and herbicide are being tested on the site. All species, except birch, basswood and ironwood, were observed in plots. Natural regeneration of boxelder *Acer negundo*, and American elm *Ulmus americana* is also being monitored. Direct seeding methods are being evaluated as a potential option for renovation of riparian areas. Two additional sites in western North Dakota were direct seeded in the fall of 2004 to provide additional establishment information to be evaluated under drier climatic conditions.

Evaluation of the Effectiveness of Various Grasses and Herbicides in Reducing Leafy Spurge. (USDA Natural Resources Conservation Service, Plant Materials Center (PMC), Bismarck, North Dakota; North Dakota State University, Fargo, North Dakota).

This study will evaluate various grass mixes and their competitive association with leafy spurge. Sites were seeded in the spring of 2005. Data collected from this study will provide information about grass species performance in areas impacted by leafy spurge.

Tree and Shrub Field Evaluation Plantings. (USDA Natural Resources Conservation Service, Plant Materials Center (PMC), Bismarck, North Dakota; Bottineau Park Board, Bottineau, North Dakota; South Dakota State University; North Dakota State University; University of Minnesota; USDI Fish and Wildlife Service.

This is an ongoing evaluation of tree and shrub material at eight sites in Minnesota, North Dakota and South Dakota. This long-term study evaluates numerous tree and shrub stock over a number of years for potential selection of suitable material for conservation use in the Northern Great Plains and Minnesota.

PLANNED OR POTENTIAL PROJECTS

Prairie Junegrass Evaluation (USDA Natural Resources Conservation Service, Plant Materials Center (PMC), Bismarck, North Dakota).

Prairie Junegrass *Koeleria macrantha* is a cool -season native bunchgrass. Additional cool-season species are needed for diversity in natural areas and range plantings. This drought tolerant bunchgrass also has potential for use in low maintenance cover plantings as an alternative turf species. Seed will be collected from sites in North Dakota, South Dakota, and Minnesota to establish an initial evaluation nursery from which one or more new seed sources will be developed.

Native Shrubs for Prairie Restoration (USDA Natural Resources Conservation Service, Plant Materials Center (PMC), Bismarck, North Dakota).

Skunkbush sumac *Rhus trilobata* seed will be collected from the western Dakotas, eastern Wyoming and Montana in 2006. Seed will be propagated at the center and the 2-year old seedlings will be transplanted into an initial evaluation block at the center to screen for vigor, growth, seed production and leaf diseases. The goal is to release a superior seed source of this species.

PUBLICATIONS AND PAPERS

Tober, Dwight A. and Bismarck Plant Materials Center 2005. Survivor Germplasm False Indigo and Silver Sands Germplasm Sandbar Willow. USDA-NRCS, Bismarck Plant Materials Center, Bismarck, ND. July 2005. 8p.

Michael Knudson 2005.Trees and Shrubs for the Red River Valley. Bismarck, ND. August 2005. 31p.

Bismarck Plant Materials Center 2005. Green Needlegrass Planting Guide. USDA-NRCS, Plant Materials Center, Bismarck, ND. June 2005. 3p.

Bismarck Plant Materials Center 2005. Getting Started in Prairie Revegetation a Recipe for Success. USDA-NRCS, Bismarck, ND. March 2005. 12p.